WHAT IS CLAIMED IS:

1. An optical device comprising:

a first-conductivity-type semiconductor substrate;

a mesa stripe overlying said semiconductor substrate and including an active layer;

a layer structure formed on both side surfaces of said mesa stripe in contact therewith, said layer structure including a semi-insulating layer, a first-conductivity-type buried layer and a carrier-depleted layer consecutively formed as viewed from said semiconductor substrate; and

a second-conductivity-type cladding layer formed on said top of said mesa stripe and said carrier-depleted layer.

2. The optical device according to claim 1, wherein said optical device is an optical modulator.

3. The optical device according to claim 2, wherein said active layer absorbs laser.

4. The optical device according to claim 3, wherein said active layer comprises InGaAsP- or InGaAlAs-based semiconductor material.

5. The optical device according to claim 3, wherein said active

layer has a multiple quantum well structure including Tl.

6. The optical device according to claim 3, wherein said semi-insulating film is either a Fe-doped or a Ru-doped InP layer, said first-conductivity-type buried layer is an impurity-doped InP layer, and said carrier-depleted layer is an undoped InP layer.

7. The optical device according to claim 6, wherein said impurity-doped InP layer has a carrier density between $1 \times 10^{18}cm^{-3}$ and $1 \times 10^{19}cm^{-3}$.

8. The optical device according to claim 4, wherein said semi-insulating layer is a Fe-doped or Ru-doped InP layer, said first-conductivity-type buried layer is an impurity-doped InP layer, and said carrier-depleted layer is a Fe-doped or Ru-doped InP layer.

9. The optical device according to claim 8, wherein said impurity-doped InP layer has a carrier density between $1 \times 10^{18}cm^{-3}$ and $1 \times 10^{19}cm^{-3}$.

10. The optical device according to claim 1, wherein said carrier-depleted layer has a thickness of 0.1 to 0.5 μm.

11. The optical device according to claim 1, wherein said first-conductivity-type buried layer includes a first buried film and a

second buried film overlying said first buried film, said first buried film has a top semiconductor surface extending from a top of each side surface of said mesa stripe between a (111) B-plane or (11x) B-plane where $x \geqq 2$, and at least an edge portion of said second buried film resides within 0.3μm from said top of said each side surface of said mesa stripe.

12. The optical device according to claim 11, wherein said semiconductor substrate comprises III-V group compound semiconductor material and has a (100) plane, said mesa stripe extending on said (100) plane in a [011] orientation.

13. The optical device according to claim 1, further comprising a diffusion suppression layer between said mesa stripe and said first-conductivity-type buried layer.

14. The optical device according to claim 13, wherein said diffusion suppression layer has a thickness of 0.005 to 0.3μm.

15. The optical device according to claim 13, wherein each of said layers comprises an InP-based semiconductor material, said first conductivity type is an n-type, said second conductivity type is a p-type, and said diffusion suppression layer includes at least one of a Fe-doped InP layer, a Ru-doped InP layer, an n-type InP layer and an undoped InP layer.

16. The optical device according to claim 15, wherein said diffusion suppression layer includes an n-type InP layer, and said n-type InP layer is in a spaced relationship with said side surface of said mesa stripe.

17. The optical device according to claim 16, wherein said diffusion suppression layer includes an n-type InP layer, said n-type InP layer having an impurity concentration between $1 \times 10^{16}cm^{-3}$ and $5 \times 10^{18}cm^{-3}$.

18. The optical device according to claim 16, wherein said diffusion suppression layer includes a Fe-doped or Ru-doped InP layer, said Fe-doped or Ru-doped InP layer has an impurity concentration between $1 \times 10^{16}cm^{-3}$ and $1 \times 10^{17}cm^{-3}$.

19. An optical integrated device comprising the optical device according to any one of claims 1 to 18, and a distributed feedback (DFB) laser diode, which are integrated on said first-conductivity-type semiconductor substrate in a monolithic structure.

20. A method for manufacturing an optical modulator, comprising the steps of:

forming a mesa stripe overlying a first-conductivity-type semiconductor substrate and including an active layer;

forming consecutively a semi-insulating film, a first-conductivity-type buried layer, and a carrier-depleted layer, which are buried on both side surfaces of said mesa stripe; and

forming a second-conductivity-type cladding layer on top of said mesa stripe and said carrier-depleted layer, wherein:

said first-conductivity-type buried layer is grown on a first growth rate when a plane orientation of said first first-conductivity-type buried layer extending from a top of said side surface of said mesa stripe resides between a (111) B-plane and a (11x) B-plane, and grown on a second growth rate larger than said first growth rate after said plane orientation reaches a (11x) plane where $x \geqq 2$.